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CITY OF PORTLAND
ENVIRONMENTAL SERVICES

1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204-1912 503-823-7740, FAX 503-823-6995 Dean Marriott, Director

August 3, 2004

Mr. Jim Anderson
Department of Environmental Quality
2020 SW 4th Avenue, Suite 400
Portland, OR 97201-4987

Subject: Source Control Decision Memorandum, Calbag Metals

Dear Mr. Anderson:

Thank you for the opportunity to comment on the draft DEQ Source Control Decision Memorandum for Calbag Metals (ECSI #2454), dated May 7, 2002, located at 4927 NW Front in Portland, Oregon. This site discharges stormwater to the City's conveyance system, which discharges to the Willamette River through City Outfall 19. Based on our knowledge of the stormwater system, data that have been collected since the Memorandum was drafted, and our administration of DEQ's 1200Z NPDES permits, we have the following comments:

1. **Site Description and History, first paragraph**: Since the memorandum was drafted, Calbag has vacated the property. Currently, NW Fleet Repair, a mechanics shop, and O'Neill Transfer & Storage, a trucking company, occupy the site. O'Neill Transport received a No Exposure Certification (NEC) on May 6, 2003. Calbag operations ceased in approximately 2000 and they vacated the property in 2003.

2. **Site Description and History, second paragraph**: As part of the metal recycling facility operations, wire coating and insulation were separated from the wire using an incinerator which generated significant ash. Was the ash ever analyzed for anything other than metals (e.g., PCBs or phthalates)?. For example, some scrap cable has been found to contain PCBs (see http://www.tci-pcb.com/article.htm). Also, according to our records, some of the wire coating was plastic which contain phthlates. Were metals analyzed in the site catch basins other than the 1200Z analytes? Since mercury and other metals were elevated in sediment (see #9 below) and the site did metals recycling, it would be important to document what metals and other contaminated solids might have been released from the site.

3. **Site Description and History, last paragraph**: The first sentence states "The primary contaminant migration pathway of concern is dissolved and suspended metal contamination in site storm water." It does not appear that they analyzed specifically for the dissolved fraction so how is this statement supported? It could very well be that the metals were predominately in the solid fraction.

4. **Regulatory History, Stormwater**: Since the memorandum was drafted, Calbag has submitted to DEQ a Notice of Termination for its NPDES permit (dated April 29, 2003). The current operations are not required to have an NPDES permit under the Clean Water Act. Therefore, there are no requirements at the site to implement or maintain BMPs; those BMPs that were implemented as part of DEQ's Cleanup program may not be continued without additional regulatory actions by DEQ. Reducing this facility's prioritization to medium at this site would be based on a set of BMPs that may not continue to be implemented.

5. **Regulatory History, Stormwater**: The attached table shows the 1200Z stormwater data for the site collected by the permittee and the City. The City typically collects an independent sample once per year at each permitted site as part of administering DEQ's 1200Z general permits. According to the Source Control Memorandum, "filter fabrics have been placed under the storm grates to trap sediment and prevent it from discharging to the storm water pipe since late 1995." Based on the attached table, these filters were not successful for the first several years; frequent exceedances of copper, and to a lesser extent of oil and grease, TSS, lead and zinc occurred until 2001. Note that the data collected at the same location by the City tended to show more frequent execeedances of the benchmarks compared with those collected by the permittee.

6. **Regulatory History, Stormwater**: The memorandum states that the "filter fabric effectively prevents (contaminated) sediment from discharging to the river." What mesh is the filter fabric? It has been our experience that filter fabric is effective for retaining larger sediment and debris but does not retain the finer particulates. Stormwater data for the last several years indicates a reduction in water column concentrations, due to the implementation of BMPs as well as the use of the filter fabric. But since there is no mechanism to ensure that these BMPs will be continued, it would be premature to assume that contaminated solids will not migrate to the river in the future.

7. **Regulatory History, Stormwater**: The facility implemented sweeping of pavement and installation of catch basin filter fabrics to reduce metals solids from entering the storm system. Even with site sweeping, there were significant concentrations of metals found in the filter fabric for a number of years, indicating that there were particulates in the asphalt that could not be captured by sweeping. At some point, the remaining metals from past activities will be predominately washed off the site into the storm system. If the filter fabric is of sufficient mesh size to retain fine particulates, it would be appropriate to continue monitoring the catch basin filter fabrics to determine when most of the metals from the site have been captured and no longer pose a potential release from the site. Further pavement vacuuming of the site may be a good source control measure to expedite reduction of fine particulates rather than waiting for this material to slowly migrate from the pavement.

8. **Regulatory History, Stormwater**: While the use of filter fabric in the catch basins may have reduced the contribution of contaminated particles to the City's conveyance system, there is still a potential that releases from the site continue to be a source to the river. Historical releases of metals may still be present in the Calbag storm pipes (between the catch basins and the junction with the City system); this was not evaluated as part of the

site investigation. Offsite migration of metals into the public conveyance system is also likely; inline samples downstream of the Calbag site indicate elevated metals likely from the site, which could continue to be released to the river.

The comparison of solids data below shows concentrations of chromium, copper, and lead collected in a Calbag catch basin, in the public stormwater conveyance system upstream and downstream of the Calbag discharge to the system, in the river adjacent to the outfall from the conveyance system, and the DEQ Portland Harbor Baseline values. Mercury is also included in this table because it was detected at higher concentrations in the pipe downgradient of the facility compared with upgradient samples. No mercury data are available for onsite catchbasins; filter fabric solids analyses appear to have been limited to 1200Z parameters rather than an evaluation of potential contaminants of concern.

Sample Collection Area	Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)
City Storm Pipe upstream of Calbag[a]	63 - 97	64 - 620	27 - 260	0.05-0.35
Calbag Catch Basin[b]	109	2,210	622	Not analyzed
City Storm Pipe downstream of Calbag[c]	262	3,310	3,690	0.92
River sediment[d]	20 - 774	62 - 772	25 - 350	0.1 – 0.8
Portland Harbor Baseline	41	60	30	0.1

[a] Collected at 4 locations upstream of Calbag storm pipe junction into public storm system.

[b]Data referenced in Calbag Source Control Memorandum

[c] Collected about 120 feet downstream of Calbag storm pipe junction into public storm system. No other known connections with public storm system between Calbag pipe and sample location.[1]

[d]Includes City data collected in general area of Outfalls 19 and 19A (CH2M HILL, 2004[2])

The inline solids data show lower concentrations of metals upgradient of the site compared with metals downgradient. While the inline concentrations downgradient of the site are higher than in the site catch basin, this could be explained by the fact that the catch basin solids were collected after implementation of site BMPs that reduced metals loading to stormwater. The inline solids concentrations represent a longer historical composite of material discharging to the conveyance system; these lines have not required any maintenance for solids removal since they were constructed in 1938-1944. The existing information on the facility history and contaminants, the concentrations in the public storm system upgradient and downgradient of the facility, and the river sediment indicate that releases from this site continue to be a source of contamination to the river.

[1] Data Report in preparation, draft to be submitted to DEQ in August 2004.

[2] "Programmatic Source Control Remedial Investigation Work Plan for the City of Portland Outfalls Project." CH2M HILL, March 19, 2004. Prepared for the City of Portland Bureau of Environmental Services.

9. **Willamette River Sediment:** Subsequent to drafting of the Source Control Memorandum, the City submitted sediment data collected in the vicinity of Outfall 19, which drains stormwater from the Calbag facility (CH2M HILL, 2004). Based on field observations during sampling, where Shaver Transport barges caused significant sediment resuspension in the vicinity of Outfalls 19 and 19A, the sediment data in this general area would not likely show a concentration gradient from the outfall. Therefore, we believe that sediment chemistry collected adjacent to both Outfalls 19 and 19A should be compared to in-pipe or upland site data to determine the potential for release. Sediment concentrations in this area were found to be considerably elevated for chromium, copper, lead, mercury, zinc, PAHs and phthalates. Arsenic, cadmium, and PCBs were found to have slightly elevated concentrations. Considering historical activities and a viable pathway at the Calbag site, it likely that this site has contributed to metal contamination in the river. The inline data suggest offsite migration into the conveyance system, which would constitute a continuing source. If there are metal-contaminated solids remaining in the Calbag storm pipes, this could also be a continuing source.

10. **Source Evaluation Results, second bullet:** See the attached table to update the discussion of stormwater. Also, although EPA's 1997 sample did not "indicate a major source of copper and lead from the outfall", more recent data collected closer to the outfall indicates high concentrations of metals. For example, some of the highest copper (at 772 mg/kg) and chromium (at 774 mg/kg) concentrations were detected within the Portland Harbor sediment in this area. This coupled with the inline data indicate there is a major source to the conveyance system.

11. **Source Evaluation Results, third bullet:** There is evidence that metal concentrations from the site may cause an adverse effect on Willamette River sediment because the elevated metal concentrations in the pubic storm system downgradient of this facility indicate offsite migration. Additionally, if there are solids remaining in the storm system onsite, these could also be a continuing source. No information is available to evaluate whether there are solids in the onsite storm system to evaluate the potential for release.

12. **Figure 2:** The storm line shown on Figure 2 is actually the line that discharges to Outfall 19A. A figure is attached that shows the stormline for Outfall 19. Based on our records, the Calbag facility only discharges to the storm line that drains to Outfall 19.

We believe that additional evaluation and source control are warranted before determining that this site is not a current source. These would include:

- Review of existing data to determine if other contaminants may currently be or historically have been released from the site.

- Evaluation of onsite storm pipes to determine if there are solids that are a current source to the public storm system. If so, require the pipes to be cleaned, ensuring that no solids are released to the public system during cleanout. Analyze the solids removed for a broader suite of contaminants to document potential releases.

- Determine regulatory mechanism to ensure that onsite BMPs are maintained or conduct additional source control (e.g., vacuuming of pavement) to the level that maintenance of filter fabric BMPs is not required.
- Clean up the offsite migration of site contaminants by removing inline solids in the public conveyance system downstream of the facility.

Thank you for the opportunity to comment on this document. If you have any questions please contact me at 503-823-7263.

Sincerely,

Dawn Sanders
City of Portland Project Manager
Superfund Program

c: Rod Struck/DEQ
Rick Applegate/City of Portland
Michael Pronold/City of Portland
Chip Humphrey/EPA
Eric Blischke/EPA

ACME TRADING & SUPPLY CO: NPDES 1200R and 1200Z Data
4927 NW Front
Compiled from City of Portland Industrial Source Control database

	Analyte	pH	Total O&G	TSS	Copper	Lead	Zinc
	Unit	std units	mg/L	mg/L	mg/L	mg/L	mg/L
	1200Z Benchmark	5.5-9	10	130	0.1	0.4	0.6
Collection_date	Tester[1]						
3/8/1995	self	7.58	5.2	38	**0.46**	0.16	0.21
3/8/1995	city	–	**64.9**	**290**	**2.74**	**1.27**	**1.26**
11/8/1995	self	7.4	10	80	**0.617**	0.369	0.395
11/27/1995	city	–	**45.9**	**235**	**4.44**	**1.09**	**1.24**
1/23/1996	city	8.4	**53.7**	**468**	**1.96**	**1.9**	**1.73**
4/25/1996	self	7.7	**16**	50	**1.94**	**0.921**	**0.884**
10/14/1996	city	–	**42.6**	86	**0.75**	**0.44**	0.46
11/6/1996	self	7.2	<5	30	**0.371**	0.225	0.176
3/19/1997	city	7.7	**57.5**	**424**	**3.06**	**1.93**	**1.93**
4/14/1997	self	7	<5	35	**0.237**	0.223	0.141
10/30/1997	self	6.2	8	15	**0.233**	**0.70**	0.0949
11/19/1997	city	7.6	**28**	**158**	**3.73**	**0.669**	**0.721**
5/13/1998	self	6.4	6	70	**0.367**	**5.09**	0.258
11/4/1998	city	7.3	8.3	22	**0.346**	**0.572**	0.542
11/10/1998	self	6.8	12	40	**0.276**	**2.78**	0.176
2/8/1999	city	6.6	6.3	12	**0.2**	0.19	0.23
3/12/1999	self	6	5	35	**0.246**	**0.921**	0.135
10/27/1999	city	7	**11**	20	**0.21**	0.16	0.3
1/10/2000	self	7.8	<5	<5	0.011	0.031	0.037
3/27/2000	city	5.9	5.2	30.2	**0.37**	0.18	0.34
4/13/2000	self	6.8	<5	5	0.043	0.093	0.055
12/19/2000	self	6.34	<5	<10	0.0173	0.0288	0.0709
4/10/2001	self	5.76	<5	<10	0.040	0.0688	0.0674
4/23/2001	city	6.5	<5	17	**0.123**	<0.2	0.309
10/22/2001	city	–	<5	91	**0.386**	<0.2	0.324
11/13/2001	self	7.74	<5	<10	0.0172	0.0372	0.0444
5/28/2002	self	6.03	<5	<10	0.0407	0.0476	0.064
11/12/2002	self	6.62	<5	<10	0.022	0.0178	0.0601
3/12/2003	city	6.2	<5	12	0.0773	<0.02	0.168
3/19/2003	self	6.41	8.11	<10	<0.02	0.0228	<0.05

[1]Reported by facility; City has not authenticated the results based on analytical laboratory sheets

-- = Not reported

Surface Sediment Data adjacent to City Outfalls 19 and 19A									
		DEQ Screening Level (High)	DEQ Screening Level (Baseline)	Outfall 19A			Outfall 19		
				SI0119A010	SI0119A020	SI0119A030	SI0119010	SI0119020	SI0119030
				10/18/2002	10/18/2002	10/18/2002	10/18/2002	10/18/2002	10/18/2002
Analyte	Units*			Surface Grab	Surface Grab	Surface Grab	Surface Grab	Surface Grab	Surface Grab
General Chemistry									
Total Organic Carbon	mg/kg	–	20000	29900	24300	23300	16600	36900	13000
Total Metals									
Aluminum	mg/kg	–	42800	15400	13600	13500	21500	16300	12000
Antimony	mg/kg	64	5	13	0.571 J	0.683 J	1.32	4.33	0.525 J
Arsenic	mg/kg	33	5	23.3	3.51	3.67	3.88	5.65	2.67
Cadmium	mg/kg	5	0.6	2.82	0.0608 J	0.331	0.395	1.35	0.00228 U
Chromium	mg/kg	111	41	774	27.6	28.1	31.4	44.2	19.9
Copper	mg/kg	149	60	772 B2	48.3 B2	61.5 B2	102 B2	266 B2	62.3 B2
Lead	mg/kg	130	30	350 B2	31.7 B2	33.7 B2	88.5 B2	187 B2	24.7 B2
Mercury	mg/kg	1	0.1	0.302	0.157	0.149	0.796	0.417	0.105
Nickel	mg/kg	49	32	153 B2	21.1 B2	21.1 B2	23.2 B2	45 B2	15.3 B2
Selenium	mg/kg	5	15	0.534 U	0.131 U	0.138 U	0.119 U	0.139 U	0.124 U
Silver	mg/kg	5	1.4	3.73	0.386 B2	0.449 B2	0.445 B2	0.695 B2	0.936 B2
Zinc	mg/kg	459	118	1320 B2	134 B2	138 B2	213 B2	397 B2	96.8 B2
Semivolatile Organics									
1,2,4-Trichlorobenzene	ug/kg	9200	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
1,2-Dichlorobenzene	ug/kg	1700	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
1,3-Dichlorobenzene	ug/kg	300	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
1,4-Dichlorobenzene	ug/kg	300	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
2,3,4,6-Tetrachlorophenol	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
2,3,5,6-Tetrachlorophenol	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
2,4,5-Trichlorophenol	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
2,4,6-Trichlorophenol	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
2,4-Dichlorophenol	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
2,4-Dimethylphenol	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
2,4-Dinitrophenol	ug/kg	–	–	1010 UJ	1150 U	1070 U	910 UJ	1110 UJ	1080 U
2,4-Dinitrotoluene	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
2,6-Dinitrotoluene	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
2-Chloronaphthalene	ug/kg	–	–	20.2 UJ	23.1 U	21.4 U	18.2 UJ	22.3 UJ	21.7 U
2-Chlorophenol	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
2-Methylnaphthalene	ug/kg	200	150	182 J	75	76.5	60.3 J	314 J	44.2
2-Methylphenol	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
2-Nitroaniline	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
2-Nitrophenol	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
3,3'-Dichlorobenzidine	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
3-Nitroaniline	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
4,6-Dinitro-2-Methylphenol	ug/kg	–	–	1010 UJ	1150 U	1070 U	910 UJ	1110 UJ	1080 U
4-Bromophenyl Phenyl Ether	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
4-Chloro-3-Methylphenol	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
4-Chloroaniline	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
4-Chlorophenyl Phenyl Ether	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
4-Methylphenol	ug/kg	–	680	404 UJ	462 U	427 U	364 UJ	563 J	434 U
4-Nitroaniline	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
4-Nitrophenol	ug/kg	–	–	1010 UJ	1150 U	1070 U	910 UJ	1110 UJ	1080 U
Acenaphthene	ug/kg	300	180	251 J	58	60.3	72 J	508 J	40.1 J
Acenaphthylene	ug/kg	200	60	197 J	73	31 J	34.6 J	22.3 UJ	30.4 J
Aniline	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
Anthracene	ug/kg	800	150	357 J	99.7	77.3	97.2 J	892 J	105
Benzo (a) anthracene	ug/kg	1000	360	850 J	271	117	147 J	1210 J	108
Benzo (a) pyrene	ug/kg	1500	500	735 J	257	99.3	108 J	905 J	77.7
Benzo [g,h,i] perylene	ug/kg	300	250	554 J	182	76.4	86 J	666 J	104
Benzofluoranthenes	ug/kg	–	–	1140 J	417	186	233 J	1450 J	100
Benzoic Acid	ug/kg	–	200	1010 UJ	1150 U	1070 U	910 UJ	1110 UJ	1080 U
Benzyl Alcohol	ug/kg	–	20	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U
Bis(2-Chloroethoxy)	ug/kg	–	–	202 UJ	231 U	214 U	182 UJ	223 UJ	217 U

Surface Sediment Data adjacent to City Outfalls 19 and 19A

Analyte	Units*	DEQ Screening Level (High)	DEQ Screening Level (Baseline)	Outfall 19A						Outfall 19					
				SI0119A010 10/18/2002 Surface Grab		SI0119A020 10/18/2002 Surface Grab		SI0119A030 10/18/2002 Surface Grab		SI0119010 10/18/2002 Surface Grab		SI0119020 10/18/2002 Surface Grab		SI0119030 10/18/2002 Surface Grab	
Methane															
Bis(2-Chloroethyl) Ether	ug/kg	--	--	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
Bis(2-Chloroisopropyl) Ether	ug/kg	--	--	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
Bis(2-Ethylhexyl) Phthalate	ug/kg	800	390	4420	J	479		483		3050	J	3240	J	290	J
Butyl Benzyl Phthalate	ug/kg	--	20	231	J	231	U	214	U	182	UJ	223	UJ	217	U
Carbazole	ug/kg	1600	100	202	UJ	231	U	214	U	182	UJ	350	J	217	U
Chrysene	ug/kg	1300	425	870	J	274		150		225	J	1290	J	93.4	
Di-n-Butyl Phthalate	ug/kg	100	20	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
Di-n-Octyl Phthalate	ug/kg	--	20	612	J	231	U	214	U	182	UJ	437	J	217	U
Dibenzo (a,h) anthracene	ug/kg	1300	125	166	J	52.1		21.4	U	18.2	UJ	221	J	21.7	U
Dibenzofuran	ug/kg	5100	100	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
Diethyl Phthalate	ug/kg	600	--	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
Dimethyl Phthalate	ug/kg	--	20	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
Fluoranthene	ug/kg	2200	600	1340	J	523		304		419	J	2980	J	245	
Fluorene	ug/kg	600	125	215	J	76.1		52.8		79.1	J	766	J	40.7	J
Hexachlorobenzene	ug/kg	100	--	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
Hexachlorobutadiene	ug/kg	600	--	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
Hexachlorocyclopentadiene	ug/kg	400	--	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
Hexachloroethane	ug/kg	--	--	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
Indeno (1,2,3-cd) pyrene	ug/kg	100	225	466	J	178		67.2		70.8	J	620	J	67.1	
Isophorone	ug/kg	--	--	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
n-Nitrosodi-n-Propylamine	ug/kg	--	--	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
n-Nitrosodimethylamine	ug/kg	--	--	1010	UJ	1150	U	1070	U	910	UJ	1110	UJ	1080	U
n-Nitrosodiphenylamine	ug/kg	--	--	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
Naphthalene	ug/kg	600	200	269	J	113		146		78.6	J	220	J	108	
Nitrobenzene	ug/kg	--	--	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
Pentachlorophenol	ug/kg	1000	97	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
Phenanthrene	ug/kg	1200	700	1060	J	304		265		386	J	2170	J	218	
Phenol	ug/kg	50	20	202	UJ	231	U	214	U	182	UJ	223	UJ	217	U
Pyrene	ug/kg	1500	700	1680	J	591		340		413	J	2870	J	261	
Estimated Total LPAHs[1,2]	ug/kg	400	700	2531		799		709		808		4870		586	
Estimated Total HPAHs[1,3]	ug/kg	1000	2400	7801		2745		1340		1702		12212		1056	
Estimated Total PAHs[1,4]	ug/kg	23000	--	10332		3544		2049		2510		17082		1643	
Chlorinated Herbicides															
2,4,5-T	ug/kg	--	--	3.3	U	NA		NA		3.21	U	NA		NA	
2,4,5-TP	ug/kg	--	--	2.7	U	NA		NA		2.62	U	NA		NA	
2,4-D	ug/kg	--	3.3	2.8	U	NA		NA		2.72	U	NA		NA	
2,4-Db	ug/kg	--	5	2.02	U	NA		NA		1.96	U	NA		NA	
4-Nitrophenol	ug/kg	--	--	1.61	U	NA		NA		1.56	U	NA		NA	
Dalapon	ug/kg	--	--	1.62	U	NA		NA		1.57	U	NA		NA	
Dicamba	ug/kg	--	--	1.65	U	NA		NA		1.61	U	NA		NA	
Dichloroprop	ug/kg	--	--	2.67	U	NA		NA		2.59	U	NA		NA	
DinosEquip Blank	ug/kg	--	--	2.31	U	NA		NA		2.25	U	NA		NA	
Mcpa	ug/kg	--	--	3.16	U	NA		NA		3.07	U	NA		NA	
Mcpp	ug/kg	--	--	1.41	U	NA		NA		1.37	U	NA		NA	
Pentachlorophenol	ug/kg	1000	97	15.1		NA		NA		2.01	U	NA		NA	
PCBs as Congeners															
PCB-008	ug/kg	--	--	0.4	U	0.43	U	0.55	JP	0.41	PU	10.1		0.37	PU
PCB-018	ug/kg	--	--	1.4	P	0.42	U	0.99	P	0.55	JP	17.5	P	1.83	
PCB-028	ug/kg	--	--	3.52		1.27	P	2.95		4.35		27.2		2.22	
PCB-044	ug/kg	--	--	3.15		0.75	P	2.75		2.41		14.9		1.9	
PCB-052	ug/kg	--	--	10	P	2.29	P	0.35	U	3.48		20.4		2.73	P
PCB-066	ug/kg	--	--	10.1		3.32		3.45	P	4.05	P	30.9	P	2.12	P
PCB-101	ug/kg	--	--	8.48		2.41	P	4.91		4.48		4.64	P	2.02	
PCB-105	ug/kg	--	--	0.17	U	0.18	U	0.17	U	0.18	U	0.18	U	0.16	U
PCB-118	ug/kg	--	--	6.57		1.17	P	2.04	P	3.31		0.22	U	0.96	P

Surface Sediment Data adjacent to City Outfalls 19 and 19A

Analyte	Units*	DEQ Screening Level (High)	DEQ Screening Level (Baseline)	Outfall 19A SI0119A010 10/18/2002 Surface Grab		Outfall 19A SI0119A020 10/18/2002 Surface Grab		Outfall 19A SI0119A030 10/18/2002 Surface Grab		Outfall 19 SI0119010 10/18/2002 Surface Grab		Outfall 19 SI0119020 10/18/2002 Surface Grab		Outfall 19 SI0119030 10/18/2002 Surface Grab	
PCB-128	ug/kg	--	--	1.21	P	0.4	JP	1.5		1.02		6.68	P	0.72	J
PCB-138	ug/kg	--	--	10.1		3.22		5.1	P	3.34	P	31.9	P	3.32	
PCB-153	ug/kg	--	--	8.46	P	3.16	P	12.6		6.44	P	0.26	U	5.19	
PCB-170	ug/kg	--	--	1.76	P	0.63	JP	4.26		1.54	P	0.2	U	1.57	
PCB-180	ug/kg	--	--	4.87		1.59		7.32		3.93		0.18	U	2.7	
PCB-187	ug/kg	--	--	4.61		2.04		6.16		3.96		0.22	U	2.62	
Estimated Total PCBs[1,5]	ug/kg	700	180	146.8		45.5		108.5		85.7		322.3		60.4	
Pesticides															
2,4'-DDD	ug/kg	--	--	23.6	C1 J	2.95	UJ	3.28	UJ	3.78	J C2	42.5	C1 J	6.17	C2 J
2,4'-DDE	ug/kg	--	--	4.88	J C2	2.95	UJ	3.28	UJ	3.24	UJ	7.87	C2 J	2.99	UJ
2,4'-DDT	ug/kg	--	--	2.65	UJ	2.95	UJ	3.28	UJ	3.24	UJ	7.22	UJ	2.99	UJ
4,4'-DDD	ug/kg	30	--	0.515	UJ	5.69	J C1	6.07	J C1	5.3	J C2	7.22	UJ	6.38	C1 J
4,4'-DDE	ug/kg	30	--	10.7	C2 J	5.94	C2 J	6.03	J C1	7.54	C1 J	24	C1 J	4.2	J C2
4,4'-DDT	ug/kg	60	--	17.3	C1 J	0.764	UJ	0.851	UJ	0.838	UJ	10.5	C1 J	4.97	J C2
Estimated Total DDTs[1,6]	ug/kg	--	220	28.00		11.63		12.10		12.84		34.50		15.55	
4,4'-Methoxychlor	ug/kg	--	--	3.65	UJ	4.06	UJ	4.52	UJ	4.46	UJ	36.1	UJ	4.12	UJ
Aldrin	ug/kg	40	--	1.14	UJ	1.27	UJ	1.42	UJ	1.4	UJ	3.61	UJ	1.29	UJ
Alpha-BHC	ug/kg	--	--	0.823	UJ	0.917	UJ	1.02	UJ	1.01	UJ	3.61	UJ	0.929	UJ
beta-BHC	ug/kg	--	--	1.12	UJ	1.25	UJ	1.39	UJ	1.37	UJ	3.61	UJ	1.27	UJ
Beta-Chlordane	ug/kg	--	--	1.08	UJ	1.2	UJ	1.33	UJ	1.31	UJ	4.21	C2 J	1.21	UJ
Chlordane	ug/kg	20	--	3.73	UJ	4.15	UJ	4.62	UJ	4.55	UJ	36.1	UJ	4.21	UJ
cis-Chlordane	ug/kg	--	--	1.05	UJ	1.17	UJ	1.31	UJ	1.29	UJ	3.61	UJ	1.19	UJ
cis-Nonachlor	ug/kg	--	--	2.65	UJ	7.96	C1 J	3.28	UJ	8.24	C1 J	60.1	C1 J	10.2	C1 J
delta-BHC	ug/kg	--	--	1.02	UJ	1.13	UJ	1.26	UJ	1.24	UJ	3.61	UJ	1.15	UJ
Dieldrin	ug/kg	60	--	0.869	UJ	1.52	J C2	1.08	UJ	1.72	J C2	27.8	C1 J	2.8	J C2
Endosulfan I	ug/kg	--	--	1.13	UJ	1.26	UJ	1.4	UJ	1.38	UJ	6.53	C2 J	1.27	UJ
Endosulfan II	ug/kg	--	--	1.02	UJ	1.14	UJ	1.27	UJ	1.25	UJ	7.22	UJ	1.16	UJ
Endosulfan Sulfate	ug/kg	--	--	0.964	UJ	1.07	UJ	1.19	UJ	1.18	UJ	7.22	UJ	1.09	UJ
Endrin	ug/kg	200	--	0.956	UJ	1.06	UJ	1.19	UJ	1.17	UJ	14.7	C1 J	1.08	UJ
Endrin Aldehyde	ug/kg	--	--	1.08	UJ	1.2	UJ	1.34	UJ	1.32	UJ	7.22	UJ	1.22	UJ
Endrin Ketone	ug/kg	--	--	0.745	UJ	0.829	UJ	0.923	UJ	0.909	UJ	7.22	UJ	0.84	UJ
Heptachlor	ug/kg	10	--	1.08	J C1	1.02	UJ	1.13	UJ	1.11	UJ	3.61	UJ	1.03	UJ
Heptachlor Epoxide	ug/kg	20	--	1.77	J C2	1.08	UJ	1.2	UJ	1.18	UJ	4.53	C2 J	1.09	UJ
Hexachlorobenzene	ug/kg	100	--	1.38	J C2	1.48	UJ	1.64	UJ	1.62	UJ	3.61	UJ	1.5	UJ
Hexachlorobutadiene	ug/kg	600	--	1.33	UJ	1.48	UJ	1.64	UJ	1.62	UJ	3.61	UJ	1.5	UJ
Hexachloroethane	ug/kg	--	--	1.33	UJ	1.48	UJ	1.64	UJ	1.62	UJ	3.61	UJ	1.5	UJ
Lindane	ug/kg	5	--	1.01	UJ	1.13	UJ	1.26	UJ	1.24	UJ	3.61	UJ	1.14	UJ
Oxychlordane	ug/kg	--	--	2.65	UJ	2.95	UJ	3.28	UJ	3.24	UJ	7.22	UJ	2.99	UJ
Toxaphene	ug/kg	--	--	16.6	UJ	18.5	UJ	20.6	UJ	20.3	UJ	361	UJ	18.7	UJ
Trans-Nonachlor	ug/kg	--	--	2.65	UJ	2.95	UJ	3.28	UJ	3.24	UJ	7.22	UJ	2.99	UJ
TPH															
Diesel	mg/kg	--	--	342		119		127		426		3790		46.2	
Lube Oil - NWTPH	mg/kg	--	--	1290		339		345		922		2310		116	

Notes:

DEQ baseline and high values are used here for screening purposes only.
border The reported value exceeds DEQ High Screening Value.
shaded The reported value exceeds Portland Harbor Baseline Screening Value.

[1] Total parameters (i.e., LPAHs, HPAHs, PAHs, PCBs, and DDTs) were calculated based on detections only. Qualifiers are not included on total parameters as it is implied that these are estimated quantities.
[2] Total LPAHs: Includes naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, and 2-methylnaphthalene.
[3] Total HPAHs: Includes fluoranthene, pyrene, benz[a]anthracene, chrysene, benzofluoranthenes, benzo[a]pyrene, indeno[1,2,3-cd]pyrene, dibenz[a,h]anthracene, and benzo[ghi]perylene.
[4] Total PAHs: Represents the sum of Total LPAHs and HPAHs.
[5] Total PCBs: The list of PCB congeners is based on EPA recommendations provided in *QA/QC Guidance for Sampling and Analysis of Sediment, Water, and Tissues for Dredged Material Evaluations,* EPA 823-B-95-001 (April 1995). This list can be used to estimate total PCBs in accordance with the NOAA method provided in NOAA Technical Memorandum NOA OMA 49 (August 1989). Calculations follow the Battelle method: Total PCB = 1.95 (Σ congeners listed) + 2.1.
[6] Total DDTs: Sum of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT.

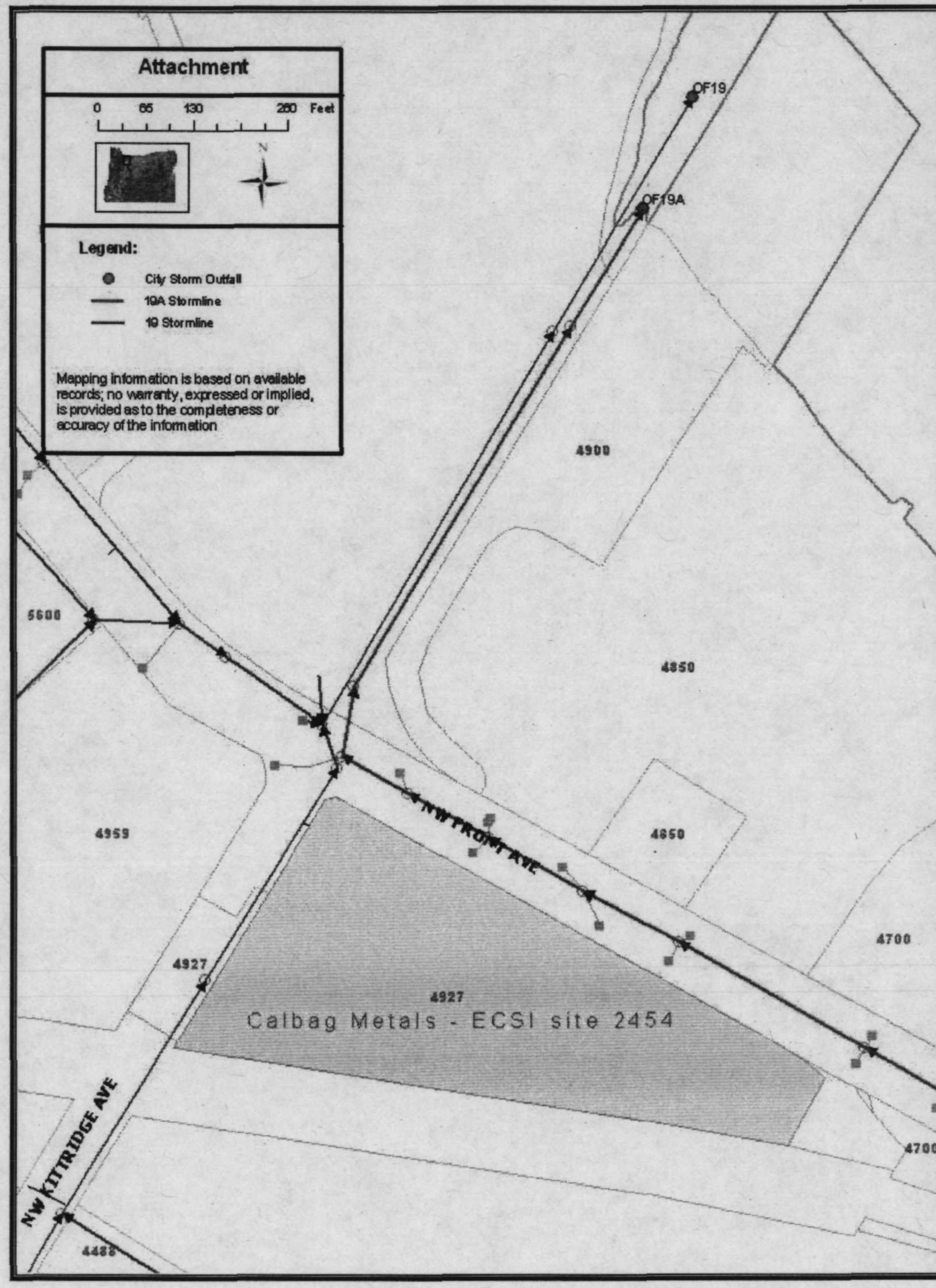
Surface Sediment Data adjacent to City Outfalls 19 and 19A										
		DEQ Screening Level (High)	DEQ Screening Level (Baseline)	Outfall 19A			Outfall 19		
				SI0119A010	SI0119A020	SI0119A030	SI0119010	SI0119020	SI0119030
				10/18/2002	10/18/2002	10/18/2002	10/18/2002	10/18/2002	10/18/2002
Analyte	Units*			Surface Grab	Surface Grab	Surface Grab	Surface Grab	Surface Grab	Surface Grab

Qualifiers:

B2 This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than 10 times the concentration reported in the blank).
J The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.
U The analyte was not detected above the reported method detection limit.
UJ The analyte was not detected above the reported method detection limit. However, the reported method detection limit is approximate and may or may not represent the actual method detection limit necessary to accurately and precisely measure the analyte in the sample.
P The difference between the analyte detected in the front and back column is greater than 40%.

Abbreviations/Definitions:

-- Not available or applicable
HPAH high molecular weight polycyclic aromatic hydrocarbons
LPAH low molecular weight polycyclic aromatic hydrocarbons
ug/kg micrograms per kilogram
mg/kg milligrams per kilogram
NA Not analyzed
NOAA National Oceanographic and Atmospheric Administration
PAH polycyclic aromatic hydrocarbon
PCB polychlorinated biphenyl
TPH total petroleum hydrocarbon


Attachment
0
65
130
260
Feet
N
Legend:
City Storm Outfall
19A Stormline
19 Stormline
Mapping information is based on available records; no warranty, expressed or implied, is provided as to the completeness or accuracy of the information
OF19
OF19A
4900
5600
4850
4959
4650
4700
4927
4927
Calbag Metals - ECSI site 2454
NW FRONT AVE
NW KITTRIDGE AVE
4700
4488